

METHOD AND APPARATUS FOR CONTROLLING RADIATION BEAM
CHARACTERISTICS FOR MICROLITHOGRAPHIC PROCESSING

ABSTRACT OF THE DISCLOSURE

Methods and apparatuses for controlling characteristics of radiation directed to a microlithographic workpiece are disclosed. An apparatus in accordance with one embodiment of the invention includes a source of radiation positioned to direct a radiation beam having an amplitude distribution, a phase distribution, and a polarization distribution, toward a workpiece. An adaptive structure can be positioned in a path of the radiation beam and can have a plurality of independently controllable and selectively radiation transmissible elements, each configured to change at least one of the amplitude distribution, the phase distribution and the polarization distribution of the radiation beam. A controller can be operatively coupled to the adaptive structure to direct the elements of the adaptive structure to change from one state to any of a plurality of available other states. Accordingly, the adaptive structure can provide radiation beams having a variety of continuously variable distributions for a variety of radiation beam characteristics.